

REMARKS

Claims 1-48 have been canceled. New claims 49-54 have been added. The application now includes claims 49-54.

New claims 49 and 50 are similar in scope to canceled claim 47 in that the recited method of canceled claim 47 involved predicting the signal quality over several respective routes and selecting the route with the best signal quality.

Claim 49 requires the steps of:

identifying a starting point and one or more destination locations in a geographic area; and
determining at least one route in said geographic area from said starting point to said one or more destination locations along which a wireless mobile communications device can be transported, and where a signal quality along said at least one route meets a threshold value, said determining step utilizing a digital map which comprises empirically collected information pertaining to wireless communications in at least a portion of said geographic area. (Emphasis added)

The present application discusses the generation of a digital map which includes empirically collected information pertaining to wireless communications in at least a portion of said geographic area. In particular, Figure 1 shows a GPS receiver 113 and a measuring device 114 connected to the system control unit 101. This allows a empirically derived digital map for a geographic area to be assembled from data collected by, for example multiple taxis, busses or delivery vans, that travel various routes in the geographic area. As noted on page 5 of the application at lines 21 to 25, “the measurement device 114 measures the field strength of wireless signals. These measurements are correlated with the location information from the GPS receiver or other location determining device and used to update the local wireless coverage map. This updating function is what makes the map an empirical map”. Figure 6 shows the use of server 600 receiving updates from three clients 601, 602, 603. As explained on page 11 of the application, the use of data from multiple clients allows the server 600 to provide

an up-to-date digital map of wireless signal information for use by all of the clients.

The invention thus provides a map of digital signal strength which is highly accurate since it utilizes actual signal strength measurements that are measured in the field and correlated with GPS or other detected location information. Thus, the map will be up-to-date and will consider obstructions, such as new buildings, or other features, such as terrain, which impact on wireless communications performance. Further, during different parts of a day, the reception quality in an area can change due to interference with neighboring transmissions, etc. The invention allows for individuals and/or companies that are dependent on wireless communication to have knowledge of and to make use of the actual signal quality characteristics within a geographic area. In one aspect of the invention, a route between destinations in the geographic area can be plotted which allows, for example the best wireless coverage (see page 8, line 25). This accomplished by using a navigation manager 102 that interacts with stored street information, as well as the empirically derived digital map. A new route is calculated (step 304 - see Figure 3) based on a variety of criteria including the wireless coverage map. Claim 49 specifically covers this aspect of the invention.

Claim 49, and dependent claims 50 and 51, are not anticipated by and are not obvious over any combination of references of record in the case, including particularly U.S. Patent 5,758,264 to Bonta, U.S. Patent 6,014,565 to Bonta, and U.S. Patent 6,188,890 to Chang.

In the office action, the Examiner suggests that U.S. Patent 6,014,565 to Bonta discloses the feature of a plurality of routes from one destination to another destination, and selecting a route from the plurality based on signal coverage. The undersigned respectfully submits this is not correct. '565 to Bonta describes a very interesting technology, but it attacks the problem in a completely different manner than the claimed invention. Rather than picking a single route from amongst a plurality routes based on a digital map of empirically derived signal strength information, '565 Bonta contemplates a system where the driver can travel any route, and the system then arranges the best network communications

along the way. That is, in '565 to Bonta the network of base transceiver stations is reconfigured to optimize communications for the car as it travels. This is why '565 to Bonta specifically contemplates determining a plurality of signal quality metrics for the plurality of connections and generates a neighbor list based on signal quality metrics.

U.S. Patent 5,758,264 to Bonta discusses a display that is used for planning the needs of a wireless communication system. Bonta describes taking measurements while traveling at varying speeds, and using these measurements in an error mask. '264 Bonta, like '565 Bonta, does not contemplate the use of a map of empirically collected wireless information to guide a user in selecting a route to travel between destinations.

U.S. Patent 6,188,890 also does not contemplate the use of a map of empirically collected wireless information to guide a user in selecting a route to travel between destinations.

In view of the above, claims 49-51, as well as dependent claim 53 which specifies the empirical map, should now be in condition for allowance. Reconsideration and allowance at an early date is requested.

Claims 52 and 54 relates to the concept of automatically stopping and restarting communications as a mobile vehicle, for example, passes through a gap in coverage. As explained on page 4 of the application, "the data to be sent from a car about to enter a tunnel is stored in a buffer until the car leaves the tunnel".

U.S. Patent 6,188,890 to Chang was cited by the Examiner due to its warning generator 912 which notifies the wireless user whether his reception is good or bad, and whether his actions make the situation better or worse. Column 3 of Chang compares the operations to the Huckel-Buckel-Beanstock game where a player that is looking for something is told whether his actions are "hotter" or "colder" (alternatively, "burning up!" or "frigid").

Chang contemplates allowing a user to know in advance that he is about to lose connections, and also provides some semblance of advice on how to take corrective action. However, at no point does Chang contemplate or suggest storing the information to be transmitted, then transmitting it once wireless

communications signals are restored to a threshold value. Further, no other reference of record discloses or makes obvious this feature. As such, claims 52 and 54 should be allowed.

In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 49-54 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,



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